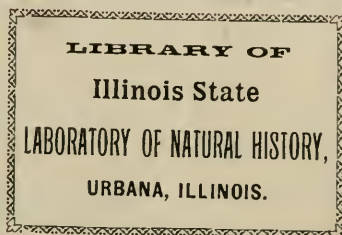


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LIST OF MAMMALS FROM
SOMALI-LAND

OBTAINED BY THE
MUSEUM'S EAST AFRICAN
EXPEDITION.

BY

D. G. ELLIOT, F. R. S. E.,

CURATOR OF DEPARTMENT.



CHICAGO, U. S. A.

June, 1897.

LIST OF MAMMALS OBTAINED BY THE FIELD COLUMBIAN
MUSEUM EAST AFRICAN EXPEDITION TO SOMALI-LAND
IN 1896. BY D. G. ELLIOT, F. R. S. E.

The chief reason that induced the Field Columbian Museum to send an expedition to Africa was the knowledge that the large wild animals were rapidly becoming extinct, and that no time was to be lost if examples of these still living species were to be procured for the Institution, to show to those who come after us the creatures that once in countless numbers roamed over the plains and in the forests of the Dark Continent. The Expedition was uncommonly successful in obtaining ample series of nearly all the species inhabiting the country it traversed, and beside the specimens themselves there were brought back photographs, casts of the head and muscles, and ample measurements of the specimens obtained. Unfortunately, on account of the illness of members of the Expedition, it was unable to penetrate as far into the interior as was intended, so a few species that would undoubtedly have been obtained are omitted from the list. Many more examples of the different species could easily have been procured, but after what was considered to be a sufficient number had been secured no more were killed, no matter how often the animals were encountered.

ORDER UNGULATA.

FAM. SUIDÆ.

Phacochoerus africanus (Gmel).

Phacochoerus africanus. Wart-Hog. Native name *Dofar*.

a. ♂ ad. Mandera.

b. ♀ juv. Mandera.

c.-d. ♀ juv. Anouf Prairie.

♂ Anouf Prairie.

e. ♀ ad. Hullieh.

The Wart-Hog was frequently met with throughout the country traveled by us. The first one seen was at Mandera near the base of the Golis Range, a splendid boar with tushes over 10 inches long

outside the mouth, and 10 inches across from tip to tip. He had seen me and sought refuge in an almost impenetrable thicket of thorn bushes. I took a position on one side, and sending the men into the bushes from the other drove him out. He presented a grand appearance as he came, trotting majestically along, without the slightest evidence of fear, his tail held upright with the tassel pendent forward, and his mane, very long and thick, raised above the neck and back. He passed within 6 feet of where I stood, and only the click of the hammer answered the pull of the trigger, as I threw the muzzle of my rifle towards him. My shikari had forgotten to throw a shell into the chamber before handing me the weapon. Of course the hog disappeared at once among the bushes, and we were obliged to track him a long way before I got a snap shot at him about 100 yards off and broke his back. He was the personification of rage when I walked up to him, champing his tusches until the foam flew from his mouth, as he made frantic but unavailing efforts to reach me. Another bullet laid him lifeless.

We always seemed to see these pigs when they were running, and never when going quietly about their business, the very open condition of the country generally permitting them to see us before we could them. They appeared to be somewhat independent of water, for we met them in the middle of the Haud, where certainly the nearest water-hole must have been 50 miles away, too far one might suppose for them to seek daily. The Wart-Hog is a fine looking animal for a pig, the long mane and rather majestic carriage of the body, especially in the full grown males, adding greatly to their appearance. They have the courage of their race, and a wounded Wart-Hog at close quarters would be a dangerous antagonist, as he could inflict fearful injuries with his formidable tusches. It is the only species found in this part of Eastern Africa. It obtains its trivial name from the peculiar wart-like excrescences upon various parts of the head. These are very prominent and usually pointed and produce a very peculiar effect, not however one of beauty. The natives being Mussulmans will not touch a hog, or anything that has come in contact with one, so the European who desires to preserve one of these animals, either as a trophy or for scientific purposes, must do all the work himself, while his followers squat around him, criticize his skill, or the lack of it, and make comments about him generally. When the members of a litter arrive at an age between one and two years, they leave the parents and shift for themselves.

At least this I imagine to be the case, for young pigs that I saw, and some of which I killed, roaming about without any adults near, and apparently quite independent of a parent's watchfulness and care, were at least over a year old. It is difficult to estimate the number of young usually found in a litter, but I should suppose from four to eight would be nearly correct. Many fall victims to carnivorous beasts, leopards being especially fond of pork, so that the species is kept from undue increase.

This species is evidently the *Phacochoerus aliani*, Rüpp, Atlas I, pl. 25.—*Sus africanus*, Gm. Syst. Nat., 1788, p. 220, having two upper and four lower incisors. There is, however, a curious fact about these teeth. The old male and female both have these incisors well exhibited in both jaws, as has also the smallest specimen only a few months old. But of the three other examples over a year old, two exhibit the lower incisors just emerging, but no indication of any in the upper jaw, while the third gives no indication of any in either jaw. As this last and one of the others were killed out of the same sounder, the idea of two species can not be for a moment entertained. But it would seem to show that the presence or absence of incisors is not an infallible test by which to determine the species. The skull of the boar, of which three views are given, is, in its superior outline, very high at the occiput, and descends rapidly to the posterior end of the nasals, these possessing a gradual curve throughout their length. The views show clearly the incisors in both jaws. The skull is very massive and heavy.

INCHES.

Total length from occiput to end of nasals.....	16.50
Length of premaxilla.....	5.55
" " nasals.....	9.40
Anterior rim of orbit to free end of premaxillæ.....	11.40
Posterior end of nasals to fronto-parietal suture.....	4.10
Width of skull between orbits.....	4.35
" " " at anterior rim of orbits (outline of molars)....	7.80
Extent of upper premolars.....	1.40
" " " molars.....	1.80
" " lower premolars.....	1.15
" " " molars.....	1.90
Length of upper tusches between tips.....	10.00
" " " " extreme outside measurement.....	10.65
" " " " on outside curve.....	8.25
" " lower tusches between tips.....	10.40
" " " " on outside curve.....	4.80

FAM. BOVIDÆ.

Bubalis swaynei (Sclat).

Bubalis swaynei. Swayne's Hartebeest. Native name *Sig*.

a.-g. ♂ ad. Toyo Plain.

h.-n. ♀ ad. Toyo Plain.

o.-p. ♀ juv. Toyo Plain.

This rare antelope, to obtain which I made a special trip to Toyo Plain, is only found in a few localities on the elevated plateau south of the Golis Range, and north of Ogaden. It dwells in the open grassy plains, such as those of Toyo, Silo, and Marar Prairie, and is never found among bushes, but keeps to the bare country where its vision is uninterrupted by any object, trusting to its great swiftness to carry it beyond the reach of its enemies. This Hartebeest goes in troupes and herds from a half dozen to many hundred individuals. On the plains inhabited by these animals the bushes are rarely over two feet high and very few in any place, so that stalking, in the usual acceptation of the term, is practically an impossibility, as the Hartebeest see the hunter much more quickly than they themselves are observed. Generally they are first sighted along the horizon line of the plain, looking like black spots in the distance, but recognizable from their peculiar shape. It is an ungraceful creature both in appearance and in its action when in motion. The hind quarters are lower than the withers, and the animals seem always to be standing up hill. But while it moves away in a lumbering kind of canter, it possesses the greatest staying power and is really the swiftest of all the antelopes, always graduating its pace to that of its pursuer, and keeping the same distance between them, looking back occasionally as if to satisfy itself that its enemy had gained nothing in the chase. Single bulls are approached most easily, but the larger the herd the more difficult it is to get near them, as the courage of the entire number is only equal to that of the most timid, and as soon as one begins to run all are off at once. When one is seen in the distance on the plain, the hunter walks toward them in a direct line if they are busy feeding or moving slowly away, but should they stop to look around them, the pursuers take a slanting direction as if intending to pass them, or had not seen them. Sometimes, when almost near enough to try a shot, they begin to run, in their rather slow, clumsy-looking canter, but which is not usually kept up for any great distance, when they stop and turn to look back. Where this happens,

and it usually does many times before the quarry is secured, or runs away altogether, the hunter has all his work to do over again. It is therefore only by the exercise of much patience and considerable staying powers a sufficiently near approach is gained for a fairly certain shot, anywhere between 200 and 400 yards; nearer than the first can seldom be secured, and frequently the latter is exceeded. An animal, wounded not in a vital part, or with one leg broken, will often run clear out of sight and escape, and it is practically useless to follow such a one as it rarely permits a favorable opportunity for a second shot. On the plains it inhabits there is no water, save what may occasionally fall in showers during the brief so-called rainy season, and this antelope must go practically without drinking, at all events for long periods. Those we killed were in excellent condition, but like all the ruminants of the country, possessed no fat whatever. Swayne's Hartebeest can not be considered a game animal; there is very little sport or excitement in its pursuit, and if I had not needed specimens for scientific purposes, after killing one I should not have cared to shoot a second. The *Sig* stands between 4 and 5 feet high at the withers. Both sexes possess horns, and these vary according to age, both in the extent and manner of curvature. Some horns of bulls measure over 23 inches from tip to tip, but the majority is much below this. The flesh is dry and on account of the absence of fat is only fairly palatable.

Madoqua swaynei (Thos.).

Madoqua swaynei. Swayne's Dik-Dik. Native name *Sakáro Guyu*.

- a. ♂ ad. Durban.
- b.-d. ♂ ad. Betteran.
- e.-f. ♂ ad. Deregodleh.
- g.-h. ♂ ad. Laferug.
- i. ♀ ad. South of Toyo Plain.
- j. ♀ juv. South of Toyo Plain.
- k. ♀ ad. Bodeleh.
- l. ♀ juv. Bodeleh.

Of the three species of pigmy antelopes inhabiting Somali-land the present is the smallest. It is generally distributed, and we met with it from the coast across the Haud to Ogaden. We have no specimen from that land, where it seems to be supplanted by the two succeeding species, but we did obtain examples a considerable distance south of Toyo Plain, and it is probable that

in that direction it extends its range to Ogaden also. It is clearly distinguishable from *M. phillipsi*, the color of its coat being very much lighter and of a different hue. My series is quite large enough to make this fact conspicuously plain, and, although the two species are met with frequently in the same localities, there can be no doubt I think, that they are independent species and not races one of the other. This Dik-Dik is very plentiful, and a large number would often be seen in one day. It does not go in troupes, but usually only the male and female would be found together, sometimes accompanied by a young one. They would bound out of a clump of aloes or from beneath some bush and go rushing away just like rabbits, and it was surprising the speed at which they swept along. They rarely ran in a direct course for any distance, but dodged about among the bushes in the most bewildering way. After running for a few moments they would stop and intently regard the cause of their alarm, and thus give an opportunity to shoot at them with some chance of success. The female always led the way, the male following a short distance behind. Should a young one be of the party it generally took the lead, and showed fully as great speed as the parents, keeping ahead with apparently no effort. Their slender legs, no larger than pipe stems, move with such rapidity that they become invisible, and it would seem that they could hardly withstand the shocks and hard usage they must receive on the rough, uneven ground their owner delights in. Dik-Dik feed on leaves and shoots of various bushes, and seem to be rather dependant on a supply of water, though where the individuals living to the south of Toyo Plain and similar dry localities procured it, would be difficult to ascertain.

Posterior portion of parietal and occipital region almost at a right angle to the upper line of the skull, which from the anterior portion of the parietal to the end of nasals is flat, with a slight slope forward. Nasals much wider than deep, with a deep recess over either side of the median line at anterior end, and rounded, being much higher in the middle than on the sides. Like the other species of the genus, the zygoma is short, formed about equally by processes from the squamosal and the malar respectively. Lacrymal fossa deep and long, extending well over the anterior portion of the maxilla. Premaxillæ rather long and slender, nearly straight for the anterior half, and rising posteriorly in an upward curve to the nasals. Palatines small, produced medianly not beyond the posterior edge of first molar.

	INCHES.
Total length of skull.....	3.70
Fronto-parietal suture to posterior end of nasals.....	1.35
Length of nasals.....	.40
Anterior rim of orbit to extreme end of premaxillæ.....	1.75
Length of premaxillæ.....	1.40
Width of skull at anterior rim of orbit.....	1.40
Inferior rim of orbit to alveolus of second upper molar.....	.50
Extent of upper premolars.....	.55
“ “ “ molars.....	.60
“ “ lower premolars.....	.60
“ “ “ molars.....	.70

Madoqua phillipsi (Thomas).

Madoqua phillipsi. Phillip's Dik-Dik. Native name *Sakáro*
Gol Ass.

- a.* ♂ ad. Adadleh.
- b.* ♂ ad. Adadleh.
- c.* ♂ ad. Marodijeh.
- d.* ♂ ad. Bodeleh.
- c.-g.* ♀ ad. Bodeleh.
- h.* ♀ juv. Bodeleh.
- i.* ♂ ad. Dagahbur.
- f.* ♀ ad. Dagahbur.

Phillip's Dik-Dik is larger than Swayne's, and also very differently colored, its rich rufous, almost at times, mahogany flanks, presenting a strong contrast to the dark back and pure white belly. In some individuals this red color intrudes so far upon the white of the under parts as to leave merely a narrow white line in the center of the breast and belly. Placed side by side in a considerable series as that now before me, the strong difference in color between these two small antelopes is very apparent.

A remarkable peculiarity of these little animals is the immense deposit in the antorbital vacuity of a black pigment, which stains everything it touches. It forms a swelling just in front of the eye and from its jet black color and considerable size makes a very conspicuous mark. No trace of this exists in the skin, and as the skull shows a cavity at this point, no one would imagine that there would here be a prominence on the face instead of a depression. The lack of knowledge of such facts as this causes the mounted specimens in museums to appear totally unlike the living animal, more caricatures than the real object, and I have never seen any drawing that correctly represented a Dik-Dik. Waller's gazelle is another species possessing a simi-

lar deposit, but of course from the greater size of that species, it is on a much larger scale.

Phillip's Dik-Dik and the preceding species have short muzzles and slanting premaxillæ, very different in appearance from *M. guentheri* and its allies. We did not meet with this species until we had reached the south side of the Golis Range. It may exist in Guban: Swayne says it is found all over that section, but we never met with it there, all our specimens belonging to *M. swaynei*, and if it is as plentiful as he states it is very strange we never procured it north of the Golis. On the other hand, *M. swaynei*, as I have stated, is found in both Guban and Ogo, and I imagine Captain Swayne has inadvertently transposed the two species when giving their distribution. In their habits there seems to be no difference between these two forms. They seek the same kind of ground and in their ways and actions they are alike. In localities where both species dwell, I have never seen them actually together, and I doubt very much if they associate with each other. If an individual of one species is shot, it is not likely that you will be able to obtain one of the other in the immediate vicinity, although it may possibly be found a mile or so away.

When alarmed, these Dik-Dik utter a shrill whistle two or three times repeated, and then bound away in a series of jumps as if they were mounted on springs, flying at times over low bushes, or leaping high in air as if to enable themselves to look back and get a better sight of the intruder on their grounds. Their movements on such occasions reminded me more of the powerful jumps of the mule deer (*Cariacus macrotis*, Say) than of any other animal that I have seen, and in proportion to their respective sizes, I think the Dik-Dik could cover more ground in their average leaps. They are very pretty and attractive animals, with a peculiar physiognomy, caused by the black swelling already referred to, and the immense eye, seemingly out of all proportion to the rest of the face. It is an eye that would be naturally associated with a nocturnal animal, and gives the impression that its owner ought to see best in the dark, but I never noticed that these antelopes were ever incommoded during the daytime from lack of ability to see clearly. The iris is a light hazel, which makes the large eye even more conspicuous. Only the males of these species carry horns, about 2.50 inches in length, nearly straight, sharply pointed, and annulated for two-thirds their length. Between and back of the horns is a

long crest-like tuft of rufous-colored hair. The face narrows rapidly in front of the orbits, giving the head a wedge-shaped appearance. The plates showing the skulls of these two antelopes exhibit their peculiar shape, together with the form and set of the horns. The figure of this species in Sclater and Thomas' "Book of Antelopes" is not nearly richly enough colored. The flanks are too light. The skull of this species is longer than that of the preceding and comparatively narrow. There is the same abrupt descent of the occipital region, but the upper outline of the facial region is not so flat but forms a slight compound curve. Nasals are much longer and curved at the anterior end. Lacrymal fossa is very large and extends beyond the lacrymal to near the anterior end of the maxilla. Premaxillæ curved posteriorly but not so abruptly as in the other species. Median line of palatine produced beyond the anterior edge of second upper molar.

	INCHES.
Total length of skull	3.95
Fronto-parietal suture to posterior end of nasals.. ..	1.22
Length of nasals .....	.90
Anterior rim of orbit to extreme end of premaxillæ	1.82
Length of premaxillæ	1.40
Width of skull at anterior rim of orbit	1.45
Inferior rim of orbit to alveolus of second upper molar .....	.55
Extent of upper premolars .....	.60
" " " molars .....	.60
" " lower premolars .....	.60
" " " molars .....	.85

Madoqua guentheri (Thomas).

Madoqua guentheri. Guenther's Dik-Dik. Native name
Sakáro Gussuli.

♂ ad. Dagahbur. Ogaden.

This Dik-Dik, peculiar among species of this genus in Somaliland on account of its lengthened muzzle, is not found so far as my experience goes, north of the southern limits of the Haud. We met with it for the first time at Dagahbur, and together with Phillip's Dik-Dik it is found throughout Ogaden. In size it is much larger than either of the preceding species, and has a very differently colored coat, but would without these characteristics be readily distinguished by its long muzzle. It is not nearly so handsome a species as the other Dik-Diks, lacking entirely the strongly contrasting coloring which they possess. It goes in larger troupes than either of the other two species, and some-

times as many as a dozen are found together, being in this respect quite different from either Swayne's or Phillip's, of which rarely more than three are started at a time. It may, however, have been possible that as it was the summer months, April to October, when I was in Somali-land, that these animals were paired and that would account for only a male and female being always found alone together. In its general habits Guenther's Dik-Dik does not seem to differ from its allies of the same genus. The skull shown on the plate accompanying this paper will give a very clear idea of the great difference in outline there is between it and those of the shorter nose species, while the lengthened premaxillæ with their peculiar shape at once attract attention. This species is about one-fourth larger than Phillip's Dik-Dik. The skull is very high posteriorly at about the center of the parietal, from which point it descends abruptly to the supra-occipital and gradually forward to tip of nasals. It is wide between the orbits, narrowing slightly to the nasals. These last are very short, being wider than they are long. The premaxillæ are very long and slender, depressed anteriorly, and, at about their midlength, rising with a sharp curve to the nasals, affording a receptacle for the proboscis-like nose. Lacrymal fossa very large and deep, occupying all the lacrymal and extending onto the maxilla. Zygoma, short, composed mainly of a process from the squamosal overlapping a short process from the molar. Glenoid fossa, deep. Palatines short, median portion not produced beyond posterior end of second upper molar. Pterygoids short and narrow. Occipital process short and slender, auditory bullæ large.

	INCHES
Total length of skull	4.20
Fronto-parietal suture to tip of premaxillæ	3.20
Anterior edge of orbit " "	2.00
Length of nasals.....	.40
" " premaxillæ	1.55
Width of skull at posterior edge of orbits	2.05
" " " " anterior " " "	1.45
Extent of upper premolars .....	.60
" " " molars.....	.75
" " lower premolars .....	.55
" " " molars.....	.80
" " diastema of lower jaw.....	.65

Gazella pelzelni (Kohl).

Gazella pelzelni. Pelzeln's gazelle. Native name *Déro*.

a.-d. ♂ ad. Durban.

e.-g. ♀ ad. Durban.

k. ♀ juv. Durban.

l. ♀ ad. Betteran.

m. ♂ ad. Deregodleh.

n. ♀ ad. Hullier.

This is the gazelle of the lowlands and is not often seen much beyond Laferug on the road to Hargeisa, where the following species begins to make its appearance. It is the larger animal of the two, and they resemble each other very much in their habits. Pelzeln's gazelle frequents dry and stony places, covered with low bushes, and it is difficult to see where or how it can obtain sufficient nourishment from the barren, forbidding districts it inhabits. It goes in small troupes of from two or three to nearly a dozen individuals. I think eleven was the greatest number I ever saw together at one time. As a rule, it is not a wild creature and readily permits an approach sufficiently near to ensure a fatal shot, but of course when much hunted becomes wild and wary. The males were often seen by themselves, and then it was not difficult to stalk them. Their horns are almost straight and annulated nearly to the tips. The female also carries horns, much straighter and much more slender than those of the male. There is considerable variation in the coloring of individuals and I hardly know what causes it. The typical style has a broad conspicuous chestnut band running lengthwise along the body just above the white of the belly. But some individuals, evidently of equal age, killed practically at the same time and in the same condition of coat, were entirely without this distinguishing mark. It may be possibly an exhibition of individual variation, for these specimens were not confined to any especial locality. I do not think, however, it was in any way an indication of age, for fully adult animals were without the stripe, neither was this peculiarity confined to either sex.

The skull of this species is rather deep through in comparison with its length. The nasals are rounded on top and bend slightly downwards at tip. They are also very broad and of about equal width throughout their entire length. The occipital region curves sharply downwards and is about on a line with the facial region; interparietal well defined, its length being nearly one-third its width; paroccipital process broad, laterally compressed, curving inward

at tip; lacrymal fossa deep and occupying all of the lacrymal. Facial region rather broad between the orbits and fairly retaining its width to end of nasals, where it narrows rapidly to end of premaxillæ, auditory bullæ very large and rounded. Palatine rather small, and not produced much beyond the middle of last molar. Pterygoids rather slender. The skull differs from those of Speke's and Waller's Gazelle by having the premaxillæ reach the nasals, which is not the case with the others mentioned.

	INCHES.
Total length of skull.....	8.00
Fronto-parietal suture to supraoccipital.....	2.50
" " " lambdoidal suture	1.85
Posterior end of nasals to fronto-parietal suture.....	1.55
Anterior rim of orbit to tip of premaxillæ	3.80
Length of nasals.....	2.05
" " premaxillæ.....	2.40
Width of skull at anterior rim of orbit.....	2.40
Lower rim of orbit to alveolus of last molar.....	1.12
Extent of upper premolars.....	.75
" " molars.....	1.48
" " lower premolars.....	.70
" " molars.....	1.50
Length of diastema of lower jaw.....	1.45
Circumference of horn at base.....	3.60
Length along curve	8.65

Gazella spekei (Blyth).

Gazella spekei. Speke's gazelle. Native name *Déro*.

- a.* ♂ ad. Laferug.
- b.* ♀ ad. Laferug.
- c.* ♀ ad. Le Gud.
- d.-f.* ♂ ad. Bodeleh.
- g.-h.* ♀ ad. Bodeleh.
- i.* ♀ juv. Bodeleh.

This is the gazelle of the high plateau, and first appeared to us at Laferug. The two species seem to meet here, as both were seen in the vicinity of this locality, but Pelzeln's gazelle was not found any farther to the south, the present species replacing it entirely. Speke's gazelle is smaller than its relative, but can never be confounded with it, as it is easily distinguished by its peculiar wrinkled nose, possessed by both sexes, but greatly modified in the female. It inhabits the same kind of ground as Pelzeln's gazelle is found in; stony bare stretches with patches of stunted grass scattered over it, and it is very seldom met with among

trees of any size, although I have known it go into rather dense clumps of jungle. I think, however, on these occasions it sought such retreats as places of refuge and more from necessity than from choice. Both sexes possess horns, those of the females being quite slender and rather straight. The horns of the male are rather stout, deeply ringed almost to the tip, and curved backwards at quite a different angle from those of Pelzeln's gazelle. It is a shy animal, at times quite wild, and one is obliged to take long shots to secure a specimen. As a rule, it seemed as if the males generally led the small bands in the marches about the country they frequented, and I was somewhat surprised at this, for the reverse is generally the case among the deer and antelope. But of course there were instances when I saw the female piloting these bands, the male straggling after her in a very careless sort of way. All the individuals, however, keep a pretty sharp watch, and when anything unusual is seen the whole band stops and regards it intently, for the animals possess a good deal of curiosity and frequently stand and gaze a long time before commencing to run. When first startled they do not go very far, but stop and look back, and if they see nothing will commence to graze again, or play with each other, the males indulging in mock battles or chasing one another with a great burst of speed; for they run with much swiftness. If followed persistently for a time they will leave the locality entirely, at least for a short period. This species soon obtained a fair idea of the range of an ordinary rifle, but was deceived by that of the Lee-Metford and Männlichers.

Premaxillæ of nearly equal width throughout their length, the posterior end resting on the maxilla, which intervenes and separates them from the nasals, as in LITHOCRANIUS. The nasals are flat and broad, and exhibit nothing to indicate the peculiar wrinkled nose of the species. Anteriorly the border is bifurcated, the recesses being quite deep. Lacrymal fossa wide and deep, auditory bullæ large and swollen, the paroccipital process, broad at base, compressed laterally, narrowing rapidly at tip, which hangs some little distance from the bulla. External auditory meatus, tubular, large. Palatine, narrow, pointed anteriorly. Premaxillæ of nearly equal width throughout their length. Horns only slightly curved, annulated for nearly the entire length.

	INCHES.
Total length of skull.....	7.85
Anterior rim of orbit to tip of premaxilla.....	3.60
Lower rim of orbit to the alveolus of third upper molar.....	1.10
Length of nasals.....	1.70
Anterior end of nasals to tip of premaxillæ.....	2.00
Posterior end of nasals to fronto-parietal suture.....	2.40
Anterior edge of external auditory meatus to supraoccipital...	1.90
Parietal suture to supraoccipital.....	.90
Width of skull anterior edge of orbit.....	2.10
Extent of upper premolars.....	.75
" " " molars.....	1.30
" " " premolars.....	.70
" " " molars.....	1.10
Length of premaxillæ.....	2.35
" " diastema of the lower jaw.....	1.35
Circumference of horn at base.....	3.30
Length of horn along curve.....	10.50

Gazella søemmerringii (Cretzschm).

Gazella søemmerringii. Søemmerring's gazelle. Native name,
Aoul.

- a.-b.* ♂ ad. Durban.
c. ♂ Haud.
d.-f. ♂ ad. Hersi Barri, Ogaden.
g.-i. ♀ ad. Hersi Barri, Ogaden.
j.-n. ♂ ad. Silo Plain.
o. ♂ juv. Silo Plain.
p.-r. ♀ juv. Silo Plain.
s. ♀ juv. Silo Plain.

This fine animal has become scarce in most parts of Guban. A few years ago it was very plentiful in the Maritime Plain, but was so persecuted by hunters of every degree that at the present day it has retired into the interior, and is not met with in any numbers until the country south of the Golis Range is reached. The *Aoul* is not a graceful animal, nor is it built on fine lines, the short neck, rather clumsy head and heavy body giving it a very different appearance from the idea generally entertained of the light-footed gazelle. This species goes in herds, sometimes several hundred are seen together, and naturally it is not particularly suspicious or wild, but of course when much persecuted the animals become very wary. They are apparently independent of water, and are frequently met with many miles from the place where it might be obtained. The entire country is so destitute of water that under the most favor-

able circumstances, the wild animals must have difficulty in procuring it, and as there are no rivers between the Shebeyleh and the sea, the natives get their supply by digging in the dry beds of the Tugs, or rivers. Of course the animals can not do this, and they must depend upon the chance pools they meet with, left by the rains, and are easy to approach even on the open plains, that is, close enough for a fairly near shot, something over a hundred yards. Of course many times it will be necessary to shoot at much greater distances than this. Among bushes it is not difficult to get very near one of these animals if stalked with knowledge and judgment.

It does not seem to make much difference to this gazelle what kind of country it dwells in, whether thickly covered with trees and bushes, or on bare plains, but I think it prefers the latter, and congregates in much larger herds in such a locality than in any other. But it can not be considered as distinctly an animal of the plains, as for instance the Hartebeest is. Aoul can be distinguished for a long distance, the large white patch on the hind quarters always showing very distinctly and causing them to be recognized from the other animals associated with them without difficulty. They are almost always seen with the herds of Hartebeest, or Oryx when these last are out on the plains in any numbers. This gazelle runs with great speed and has the habit of jumping often to a considerable height and for long distances when in full flight.

Possessed of considerable curiosity Aoul will always stop after going a short distance, and turn to look at the cause of their fears, and sometimes individuals will stand for a considerable time, giving the hunter a good opportunity to shoot at them. Although large for a gazelle, the body presents but a small mark, and the bullet must be placed in some vital part or else the animal will escape, as it possesses great vitality, and a broken leg does not seem to incommode it in the least, nor prevent it from running at full speed on the three that are unhurt.

Both sexes carry horns, and these vary greatly in length and shape. Sometimes the horns of a male will measure 20 inches and even more along the curve, but the average length is much less, something like 14 inches. The smaller pairs however are much more shapely than those of the extreme lengths, the latter losing much of the characteristic graceful curve.

Aoul seem to be generally distributed south of the Golis Range

and we met with them almost everywhere, being very plentiful in parts of Ogaden. On the Haud they seem to restrict themselves mostly to the plains where they are seen in large herds.

Ammodorcas clarkei (Thomas).

Ammodorcas clarkei. Clarke's gazelle. Native name *Dibatag*.

a.-b. ♂ ad. South of Toyo Plain.

c.-d. ♀ ad. South of Toyo Plain.

e. ♂ juv. South of Toyo Plain.

f. ♀ juv. South of Toyo Plain.

This rare species is only met with in the country south of Toyo Plain, and then eastward to the land of the Dolbahanta. It does not seem to be very numerous even in the localities it frequents, at least that was our experience, and we found it to be the most wary and difficult of approach, of all the animals we hunted. It is not easily seen among the bushes, and it has the habit of concealing its body behind some bush, and looking at you over the top, which its long neck readily enables it to do. The neck is so slender and the head so small and pointed, and its peculiar purplish gray glossy coat matches the high grass so well, that the animals are almost invisible, and it takes one quite a little while at times to distinguish them. Then they know at once when you discover them, and are off, and present so small a mark that they are very difficult to hit. At a distance when they stand facing one, the neck does not look wider than a twig, and one has to shoot very straight indeed to secure a specimen of this wary, active species. Although very different in appearance from Waller's Gazelles (*Lithocranius walleri*) when brought close to each other, yet at a distance it is not always easy to distinguish them if not in motion. But the moment a *Dibatag* starts to run there is no mistaking the species to which it belongs, its movements being so entirely different. Instead of the low, slouching gait of Waller's Gazelle, the *Dibatag* bounds away with head and tail well up, the former inclining slightly towards the latter, clearing the bushes at every jump in the manner of the lesser Koodoo, (*S. imberbis*). I have never seen it carry its head and tail when running so that they nearly touched each other, as some writers have described, but on the contrary the tail is carried straight up in the air, and this alone, from its length, would at once distinguish the *Dibatag* from the *Gerenuk* at any distance. It has the long neck and peculiar physiognomy of the *Gerenuk*, both considerably giraffe-like, and the two species inhabit the same

kind of country, but I have never seen them associated together. As mentioned by Swayne, it frequents the jungle of the umbrella mimosa, and glades of *durr* grass, often taking refuge in dense high patches of this last, especially when wounded. The horns of the male are peculiar and shaped more like those of a reed-buck, and measure from 8 to 11 inches along the curve. The female is without horns. The *Dibatag* is a gracefully formed, beautifully colored animal, and possesses more sporting qualities than any antelope we met with, unless it might be the two species of Koodoo, particularly the lesser Koodoo.

Roof of cranial cavity convex from rear of pedicles to supra-occipital, the slope being very considerable from anterior to lambdoidal suture to the posterior extremity of the skull. Interparietal rather large; facial portion flat, descending rapidly at the posterior part of the orbits, and retaining its width to the posterior edge of first molar, when it narrows rapidly to the premaxillæ. Orbital vacuity considerable, pointed posteriorly and rounded anteriorly. Lacrymal fossa deep and occupying the surface of the lacrymal, its length being about one-half the diameter of the orbit. Nasals flat on top, slightly rounded at the sides, and pointed both anteriorly and posteriorly. Premaxillæ very long, rather broad, curved upwards at their posterior end, and joining the nasals, where the articulation is very broad. Pedicles only moderately high, the base of the horns elevated slightly above the plane of the skull. Orbits very large. Paroccipital process long, curved inward at tip, and hanging well away from and below the auditory bullæ. These last are only moderately large, the extreme width equal to one-half the length, and oval in form. External auditory meatus prominent, tubular. Pterygoids rather short, broad above, ending below in a hamular process projecting backwards. Palatine of moderate extent, posteriorly deeply notched, this last beginning with a narrow slit and widening towards the pterygoids. Mandible long and slender, in this respect resembling that of *Lithocranius walleri*; the condyle is broad and flat, the coronoid process long and narrow, and curved backwards, angle partially rounded extending considerably beyond the condyle and coronoid process. Tooth row extending over one-half the length of upper line of mandible, premolars small, molars large, occupying more than twice the space of premolars. Horns in shape like those of the reed-buck, deeply annulated on lower half, graduating to a point, which tends upward and slightly forward.

	INCHES.
Total length.....	8.20
Length of parietal from lambdoidal suture to junction with the frontals.....	1.80
Length of interparietals .....	.95
Fronto-parietal suture to posterior end of nasals.....	2.
Length of nasals.....	2.45
Anterior rim of orbit to tip of premaxilla.....	4.
Width of skull at anterior edge of orbits.....	2.55
Length of premaxillæ.....	2.65
Extent of upper premolars.....	.80
“ “ “ molars.....	1.35
“ “ lower premolars.....	.65
“ “ “ molars.....	1.45
Anterior edge of orbit to alveolus of second molar.....	.80
Circumference of horns at base.....	5.25
Length along curve, posteriorly.....	10.45

The skull of this species is similar to that of Waller's gazelle, *Lithocranius walleri*, but the occipital region is much less prolonged according to its comparative length, and is altogether of a more delicate shape.

Lithocranius walleri (Brooke).

Lithocranius walleri. Waller's gazelle. Native name *Gerenuk*.

- a.* ♀ ad. Laferug.
- b.* ♂ ad. Mandera.
- c.-d.* ♂ ad. South of Toyo Plain.
- e.-f.* ♂ juv. South of Toyo Plain.
- g.* ♀ ad. South of Toyo Plain.
- h.-i.* ♀ juv. South of Toyo Plain.
- j.-k.* ♂ ad. Marodijeh.
- l.* ♀ ad. Marodijeh.
- m.-o.* ♂ ad. Hullieh.
- p.-r.* ♀ ad. Hullieh.
- s.* ♂ ad. Bodeleh.
- t.* ♀ juv. Haud.
- u.* ♂ ad. Hersi Barri, Ogaden.
- v.* ♀ ad. Dagahbur, Ogaden.

This is the most frequently seen of all the antelopes inhabiting Somali-land, save perhaps the various species of Dik-Dik. It is also the most peculiar in appearance, the exceedingly long neck, large eyes, lengthened muzzle and general shape of the face, being very like a giraffe. It is not a graceful animal in its movements, but walks along in a slouching sort of way, and

when startled drops its head on a level with the body and sneaks off among the bushes, in a very different manner from the gallant way in which the *Dibatag* removes himself from the object of his fears.

The Gerenuk goes in small troupes of from three to eight or ten individuals, and is found usually on rocky ground broken with ravines and covered more or less densely with bushes and trees. It is a browsing animal, and is often found in localities where grass is partly or wholly absent. It has great curiosity, which failing is often fatal to its safety, and when it sees an unusual object, a hunter for instance, will stand and gaze steadily for some moments without moving. If one is not near enough for a shot, these are trying moments to a hunter, who is obliged to remain absolutely rigid until the Gerenuk commences to feed or is satisfied there is no danger, otherwise at the slightest motion the head is ducked behind the bush and the animal sneaks away. As a rule, however, it does not go far, and I never saw a Gerenuk that I could not eventually secure, if I determined to have it. It was only a question of a little time and patience, and an approach to a fair shooting distance could be gained. I consider the Gerenuk as rather a stupid animal, certainly it does not seem to possess the wariness, watchfulness and general ability to take care of itself which are common attributes of all other species of gazelle. The meat is poor, being like the flesh of all other game animals in Somali-land, without a particle of fat, and consequently dry and tasteless. Only a few of the natives will eat it, as they consider it looks too much like a camel, and have certain superstitions regarding it. The males carry rather handsome lyrate horns, the largest measuring something over 14 inches along the curve. The females are hornless. The Gerenuk is never seen on the treeless plains, such as are met with on the Haud, at least I have never observed them in such places, but I have found them on barren, rocky hillsides and summits, the valleys between which, however, were covered by a thorn forest. In such cases the animals were probably merely passing from one valley to another. The usual gait of this antelope is a slouching trot, with the head and neck carried very low, level with the body, but when really frightened it gallops with considerable speed, stopping, however, at intervals to look back at the object of its alarm, and if at such times the hunter is concealed the Gerenuk soon forgets its fear and commences to feed or walk slowly along. The male of this species stands about 4 feet 6 inches high, a considerable portion of which is due to the long neck.

Certain individuals of both sexes of this species have on either side of the face a whitish stripe between the eye and end of nose, resembling very much the markings of Clarke's gazelle, *Ammodorcas clarkei*. This was particularly the case with individuals shot to the south of Toyo Plain, where it was rare to obtain one without this conspicuous mark. The animals also were larger than their brethren in other parts of the country to the north and west. I was impressed with this peculiarity, and should have considered it of some value if it had been confined to individuals from one section of the country, but on careful examination of the specimens obtained on my return to the north of Toyo, I occasionally found one with this stripe indicated along the nose, but not so clearly defined as is generally the rule in the individuals from the south of the plain. When clearly marked it gives the head of Waller's gazelle a very close resemblance to that of Clarke's gazelle, as both have similarly shaped faces, very narrow and pointed. Taking the extremes of the two styles, the strongly marked white stripe, and its almost total absence, one would be likely to imagine that there were two well defined races of Waller's gazelle. This species has in front of the eye, filling up the antorbital vacuity, a black secretion which forms a large conspicuous prominence on each side of the face. The only other animals in which I have seen this carried to an equal degree, allowing for their comparative size, are the Dik-Diks. There is a small opening in the center of this sac-like prominence, from which the secretion exudes and stains everything it comes in contact with, the same as ink would. Neither the skin, when removed from the animal, nor the skull, give any indication of this prominence, and so the creature when mounted, or in a drawing given of it, presents no resemblance, so far as the face is concerned, to the living animal; those specimens I have seen in the museums have this part laid flat to the skull and painted white, being more of a caricature of the live Gerenuk than anything else. In life this gazelle is a fine creature, graceful in form if not in movement, and having an extraordinary structure of face and peculiar expression, which cause it to be a rather unique species among its allies in the family.

The skull of this singular gazelle is remarkable among those of its relatives for the large proportion that is exhibited behind the horns, caused by an elongation of the occipital region. The interparietal is very long, the length being almost equal to the greatest width, and pointed posteriorly. Between the orbits.

there is a great depression, causing the facial region to be on a considerably lower level than the occipital. Frontals, rather short and narrow. The nasals are very long and pointed posteriorly. The premaxillæ are long and broad and do not reach the nasals, but this is not a unique character, as it is seen in other gazelles, such as *G. pelzelni*. The auditory bullæ are rather small, but long for their width and slightly compressed laterally. The mesopterygoid fossa is narrow and very long, while the palatines are comparatively short. The tooth row is short and the teeth small and of the brachyodont type. The orbit is very large and surrounded by bone, and there is a slight antorbital depression. The foramen ovale is very large, irregularly oval. Rami of the mandible, very long and slender, and the posterior portion is also comparatively narrow, the lower edge of the angle being on a line with that of the rami, and its posterior edge only slightly concave. The coronoid process is long and slender and inclined backwards, its tip projecting somewhat behind the condyle. It is a singularly long and narrow skull, the greatest width just in front of the horns, and from the eyes tapering rapidly to the nose, giving the animal when viewed from the front in life a very peculiar and unusual expression. The horns are lyrate, curving backwards, and then suddenly upward and slightly forward at the tip. They are annulated irregularly nearly to the tip, and average about 12 inches along the curve. Extreme length is between 15 and 16 inches, but such horns are rare. They vary somewhat in the style of the curve, and in some cases the tips turn inwards toward each other instead of forward.

	INCHES.
Total length.....	10.25
Anterior edge of nasals to tip of premaxilla	1.20
Median length of nasals.....	3.20
Posterior end of nasals to fronto-parietal suture (median line).....	2.40
Width of skull at anterior edge of orbit.....	2.40
Length of skull from fronto-parietal suture to supraoccipital.....	3.45
Center of external auditory meatus to supraoccipital	2.60
Inferior rim of orbit to alveolus of third upper molar.....	1.10
Inferior edge of ramus to alveolus of first lower molar .....	.70
Extent of upper premolars.....	.85
" " " molars.....	1.15
" " lower premolars .....	.70
" " " molars.....	1.30
Length of premaxillæ.....	2.77
Length of diastema of the lower jaw.....	2.50
Circumference of horns at base.....	5.10
Length of horns along the curve	12.70

Oryx beisa (Rüpp).

Oryx beisa. The Oryx. Native name *Beit*.

a.-c. ♂ juv. South of Toyo Plain.

d. ♀ ad. South of Toyo Plain.

e. ♂ ad. Hullier.

f. ♀ ad. Hullier.

g. ♂ ad. Bodeleh.

h. ♂ ad. Silo Plain.

i. ♀ ad. Silo Plain.

j. ♂ ad. Haud.

k. ♀ juv. Haud.

l. ♀ ad. Hersi Barri, Ogaden.

Oryx are not often seen in the country north of the Golis Range, but their numbers increase as the Haud is traversed, and on the south of Toyo, and in Ogaden they are plentiful. It is a stoutly built animal, about the size of a large donkey, and goes in herds, sometimes as many as fifty or more being seen together. Generally, however, a dozen individuals or less are met with. It is not unusual to find old bulls wandering about by themselves. At a distance it is impossible to distinguish the bulls from the cows, as both carry horns, those of the cows more slender and usually longer than the average of bull's horns. But this difference in size is not perceptible unless one is very close to the animals. The horns are annulated for two-thirds their length, then become smooth, and end in a sharp point. The average length of bulls' horns are not much over 30 inches, although occasionally specimens are obtained that are several inches longer, and the cows' horns sometimes reach a length of 37 or 38 inches. They are very formidable weapons and it is dangerous to approach a wounded oryx. In charging its enemy the oryx puts its head low down between its fore legs, with the horns pointed forward not much above the ground, and rushes at the object of its hate with much swiftness. These lance-like horns are quite capable of passing entirely through the body of an animal. *Oryx* seem to be quite independent of water, and are often seen many miles from any place where it could be procured. They frequent the waterless, treeless plains, such as Toyo, Silo, etc., in herds sometimes of large size, and subsist upon the harsh dry grass common to such localities. The skin of a bull is very thick on the neck and withers, in some cases as much as three-quarters of an inch through. The natives select this part of the hide to make their shields, which are sufficiently

tough to stop any spear or arrow. As the bulls are very pugnacious, no doubt their tough, thick hides are a great protection against the lance-like horns, and save them from being run through this vital portion of the body.

I have frequently seen bulls fighting and thrusting with their horns, ending in the weaker being chased for a long distance by the victor, amid a cloud of dust. Oryx are not especially wary, but their sight is very keen, and they depend more upon their eyes to detect danger than either upon nose or ears. It is not, however, a difficult matter to get within fair shooting distance of a herd, provided due caution is used and the ground is suitable for stalking. The natives frequently hunt this animal on their ponies and endeavor to spear it, and every year a number of men and horses lose their lives, transfixed by the sharp horns of the angry game. Oryx run with considerable speed, and are able to keep it up for a long time, but the natives surround a herd and are therefore able to meet the animals, no matter which way they may run. Calves are curious looking little creatures, something like those of the domestic cattle, having a hump upon the shoulders. They soon become quite tame, and one we had for a short time would readily suckle a goat, although the latter was not half its size. The horns at first are mere knobs with the points turned to one side, and these ends do not become straight until a length of several inches is attained. Calves utter a sound between a bleat and a bellow, and this expresses either fear or hunger. They run even more swiftly than the adult, and it is wonderful to see the little creatures keeping up with a herd in full flight, frequently taking the lead and keeping it. Oryx are often seen with Hartebeest, Aoul, etc., peacefully grazing on the plain together. They were plentiful a few years ago in the country between the Golis Range and the coast, but have practically deserted that district at the present day, and in all our journeys throughout Guban we only saw three individuals. It can only now be found in any numbers after the Haud is reached, about 100 miles south of Berbera, and is really only plentiful in the southern portion of the Haud and the country beyond.

This species of Oryx is the second largest of those known, being exceeded in size by the Gemsbok, *Oryx gazella*, from South Africa. This last, a very fine animal, is almost extinct, a remnant being protected on a few farms, but its days are numbered and it will soon disappear.

Strepsiceros Kudu (Gray).

Strepsiceros Kudu. Big Koodoo. Native name *Godir*.

a. ♂ ad. Golis Range near Jerato Pass.

b. ♂ ad. Hullier.

c. ♂ juv. Hullier.

d. ♀ ad. Hullier.

This is a mountain species, delighting in the lofty ranges amid steep declivities, ravines, and broken ground, and occasionally going on to the plains, and when it does so it is probably merely to reach some other range of lofty hills lying beyond. The Big Koodoo is a magnificent animal, one of the largest of known species of antelope, possessed of a powerful frame, beautiful coloring, and the male carries a magnificent pair of long spiral horns. The female is hornless. It keeps near water, unlike in this respect so many African antelopes, and is very shy and retiring, remaining in the most inaccessible parts of the hills it can find, and starting off at the slightest sign of danger or sight of a suspicious object. The easy way in which a bull Koodoo can travel over the rocky ground, scaling apparently inaccessible cliffs, and going at speed over the roughest places broken up into defiles and thickly strewn with bowlders and broken stones, is wonderful to witness; but the animal goes clattering along, making a prodigious noise the while, with as much ease as a horse would travel on a good road. Koodoo are cunning, and their eyes, nose, and ears serve them equally well, but the very style of ground they inhabit, and which serves as a refuge, is one of the means of their destruction, for it is easy to stalk them when the hunter has innumerable objects at hand by means of which he can veil his approach and gain a position near the unsuspecting quarry, from which a deadly shot can be taken. Koodoo go in small herds, usually consisting of an old bull and two or three cows, with their calves if there are any. Occasionally a young bull may be of the party, but if that is the case he is usually too young to excite any jealousy in the lord of the family. The cows are the most watchful, and are always on the lookout to perceive approaching danger, and the bull trusts almost entirely to them to give him timely warning. The note or call of the female when she is startled is a kind of bark, which, when heard, puts all the members of a herd on the *qui vive*. This and the succeeding species never associate together, for although the Big Koodoo may go down on the plains stretching away from the base of the mountains, his small relative never

ascends to the heights on which he loves to dwell. They may "meet by chance," but I fancy the Lesser Koodoo would have no especial desire to prolong the acquaintance.

A bull Koodoo will stand about 13 hands high and the horns measure sometimes as much as 60 inches along the curve. These however belong to South African individuals which seem to have larger horns than their Somali brethren. Those of the latter country rarely exceed 50 inches on the curve and 3 feet high, *i. e.*, from base to tip. The largest we procured were 38 inches high, and 49 along the curve. In Somali-land this fine animal is found in the Golis Range and the Gadabursi hills, and some also are to be met with in the mountains near the Erar river in Ogaden near the Abyssinian boundary. It is becoming scarce in Somali-land, as many are killed every year, and it will not be long before this fine antelope will have disappeared from that portion of East Africa. In South Africa this species is still quite numerous in the mountains in the vicinity of Delagoa Bay, and as that is one of the worst fever districts perhaps to be met with on the continent, the Koodoo may be found there after the race has disappeared from more healthy localities. A fine head of a big Koodoo bull is a great trophy for a sportsman and all desire to possess one, but it is a question whether even to obtain so coveted an object, it is worth while to endanger one's life, for the African fever is something that one can get on just as happily without even if he never obtains any knowledge of it. In certain parts of South Africa such as the country around the Zambesi river, the Big Koodoo does not confine itself to the hills, but is found in the thick bush along the banks of the streams, and in the thorn jungles where these are abundant, in this respect being very different in its habits as practised in Somali-land where, as I have said, it is almost entirely an inhabitant of the mountains and lofty hills. It seems to be a very restless animal, and wanders a great deal, traveling from one portion of a range to another, and I have known them to leave the Golis entirely and go upon the Haud, as one time three individuals were met with by my party some ten or fifteen miles beyond the Haud's northern boundary, where there were no hills, merely a comparatively flat plain covered by low thorn trees and bushes. They seemed out of place in such a situation, and evidently felt that way themselves, for on being surprised started away in the direction of the distant mountains at the best pace of which they were capable. The color of old bulls is a beautiful blue gray, that of the

females and young, reddish brown, both sexes, having the body decorated with eight or nine narrow white stripes.

Strepsiceros imberbis (Blyth).

Strepsiceros imberbis. Lesser Koodoo. Native name *Arreh*, male; *Adir-yu*, female.

- a.* ♂ juv. Laferug.
- b.* ♂ ad. Mandera.
- c.-d.* ♂ juv. Mandera.
- e.-h.* ♀ ad. Mandera.
- i.* ♀ ad. Hullier.

The Lesser Koodoo is found at the base of the Golis, and in Ogaden, being plentiful in the valley of the Shebeyleh river.

This beautiful antelope, by far the handsomest of all those to be found in Somali-land, dwells in the thick forest of thorn trees where there is a heavy undergrowth of aloes, bearing red or yellow flowers about five feet above the ground. I have seen it quite near the plains but never in the open. The head and neck are spotted with white, and there are usually eleven to thirteen white stripes around the body. The ears are very large, and the horns of the male rise in a spiral, a miniature imitation of those of the Big Koodoo. The Lesser Koodoo is a wary animal, and is very skillful in concealing itself among the bushes, over which it looks for a moment at an intruder upon its haunts, and then goes bounding away over the bushes and intervening objects, in the easiest and most graceful manner, more suggestive of flying than any other kind of motion.

Careful stalking and tracking are necessary to enable one to get a favorable shot at one of these animals, and when he has reached a suitable shooting distance one must be quick and not linger upon his aim. This species goes in small herds of from four to six, and it is not often that two bucks are seen together. There is a great difference in the coloring of the sexes, the bucks being blue on head and neck, growing almost black with age, while the does are brown as are also the young. At all ages the body is decorated with numerous white stripes, which gives it a very beautiful and striking effect. The Lesser Koodoo is gracefully formed and all its movements are very easy and attractive, while it is a most pleasing sight to witness one, with head and tail erect, flying at full speed over the bushes. Unlike many of the other antelope, the Lesser Koodoo where once started is rarely seen again, as it generally goes a considerable distance

when frightened, and the density of the forest in which it delights affords every means for escape. Frequently a number of does accompany one buck, and I suppose he secures as large a harem as he is able to maintain. The females are without horns, and are smaller and of slighter build than the males. Specimens of this animal are very scarce in collections, in fact I know of no Institution save the Field Museum which possesses a full series from babyhood to adult age to represent the species. The skin is not easy to preserve, the hair coming out on the slightest provocation.

Dorcotragus megalotis (Menges).

Dorcotragus megalotis. Baira Antelope. Native name *Baira*.

♀ ad. "Nasr Hablod," near Hargeisa.

♀ juv. "Nasr Hablod," near Hargeisa.

This beautiful and very rare antelope was only met with at one place by any member of my party. On three successive days Mr. Akeley saw a small band on one of the peaks known as Nasr Hablod, or the Virgin's Breast, about half way between our camp at Hullier, and Hargeisa. It would seem to be strictly a mountain species, at home on the rocky cliffs and deep defiles of high peaks, running at full speed over precipitous places with a sureness of foot and certainty of step that would seem wonderful for an animal to possess, if you did not know the peculiar shape of the hoof, and how admirably it is adapted for clinging to steep inclines as well as for guarding against shocks to the body when making long leaps downwards. The hoof is of an entirely different shape from that of the Klipspringer, Alikud of the Somalis (*Oreotragus sylvator*), in which genus the describer of this species placed it, but it is equally well padded although in a different way, nor does it rest upon the ground in a like manner. The Klipspringer stands entirely upon its toes, so to speak, that is on the tips of the hoofs, these being vertical with the ends only touching the ground. The hoof of the Baira has a wide spread, and the two halves are narrow in front and pointed. The pad extends below the hoof proper and swells out behind, forming a perfect cushion on which the animal walks and runs, keeping the hoof, unless at its extreme point, free of the ground. At my request Mr. Akeley has given me the following account of the capture of the specimens brought back by us:

"I had killed an Oryx, and sent my gun bearer to camp for a camel to transport the carcass back, and leaving my shikari to

watch the animal, took a stroll about the jungle. The peaks of Nasr Hablod, or Virgin's Breast, were only a few hundred yards in front of me, and I was irresistibly drawn towards them, influenced probably by the memory of the Big Bull Koodoo I had killed at their base the day before. I moved cautiously towards them, hiding myself as much as possible in the gullies and ravines, until I had drawn very near the base of the small peak, and stepped behind some huge rocks. Farther I could not go without exposing myself to any animal in front of my position. From my post I took a careful look over the ground, and saw a band of antelopes running up the sides of the peak. They stopped in the shade of a spreading thorn tree and gazed in my direction. From their manner of moving and the great size and peculiar slope of their ears, they seemed to me to be Koodoo cows and calves. To my right was a great mass of rocks, which if I could reach I would be within two hundred yards of the animals, as the distance seemed to me at the time. I crawled on all fours behind the rocks and then made a wide detour, keeping in the gullies, and finally gained the desired place. Peering cautiously over the rocks I saw them still standing in the shade of the tree. I fired two or three times, my bullets all going high, and then I began to realize that instead of shooting at Koodoo two hundred yards or more away, I was firing at a much smaller antelope only about seventy-five yards from me. The steep mountain side strewn with small stones, together with the Koodoo-like movements of the animals and their large ears had completely deceived me. They were now thoroughly alarmed, but as they could not tell where the shots came from on account of the echoes they merely ran about in a confused way. I took careful aim and knocked one over, but he immediately rose and crawled under a bush. At the next shot I killed one in his tracks, and the remaining ones made a dash to escape, running past me at about forty yards. I succeeded in stopping one for a moment, but it rose to its feet and fell again two or three times and at last stopped as I supposed for good. I then tried to take possession of my game and got within ten feet of the one I had first wounded and stood looking at it, surprised to find it was such a little fellow. It was a hard thing to come down from the idea of a Big Koodoo, one of the grandest of African antelope, to a little thing not over twenty inches high at the shoulder. I noticed that it had straight sharp horns about four or five inches long, and just then it came

to the conclusion it was time to disappear, and it did. I have never seen any animal move so quickly as did that one. I had a fleeting glimpse of him a few moments later going up the side of the opposite peak on three legs, and from the way he traveled I think he could have got on fairly well with only one. I returned to the one that was really dead and found it to be an adult female. Then I went to look for the young one I had seen kicking the gravel, but found only a few drops of blood. Nearly roasted by the mid-day sun, we took the one little antelope and went back to the oryx to find that a horde of vultures had eaten the carcase; my Shikari, hearing so many shots, being unable to remain behind, had disobeyed his orders and left the animal to come and see what I was shooting at. The camel arriving, we returned to camp with such booty as was left. The next morning I returned to the same place, and had hardly reached the base of the peak when the young Beira jumped from almost under our feet and ran swiftly, but only for a short distance, as it was very weak. We soon captured it, and after hunting the mountains thoroughly without finding a trace of the others, returned to camp. I went back to this place nearly every day for a week in hopes of getting an old male. Once I saw a bunch of four. After hunting everywhere with my Shikari, and seeing nothing, we sat down on a large rock, when he suddenly made an exclamation, and looking in the direction he pointed, I saw the Beira moving swiftly up the side of the peak, stopping occasionally to look back. So perfectly were they protected by their color that when they stopped they became nearly invisible, and if I took my eyes away from them it was almost impossible to find them again until they moved. We watched them until they disappeared over the top of the cone, and then climbed as fast as we could up the sides of the peak, hoping to head them off, but on looking carefully over the top we saw the nimble creatures just leaving the base to go onto the plain. I took a few rapid shots at them, but only made the stones fly. They went out onto the plain and stopped under a bush. We followed them unsuccessfully for an hour or more. The third time, thoroughly tired with a long stalk, and nearly dead with the heat, I was looking for my boys to return to camp when, turning to take a last look at the sides of the peak, I saw at the top, clearly defined against the sky, three pair of great ears in a row perfectly motionless. I imagined the animals had seen me before that morning and had become reckless when they supposed they were

taking a farewell look at me. I started to stalk them when they wheeled and disappeared. With my remaining strength I climbed to the top of the peak, where I had a commanding view on all sides, but I never saw them again.

Of all the antelope we hunted this species is the most difficult to capture. Their color assimilates so completely with the stony ground they frequent that at a hundred yards, unless the animals are moving or stand on the sky line, it is almost impossible to see them, even though you know almost exactly where they are. This practical impossibility of observing them together with their wonderful speed, accounts for the few that are killed and the rarity of the species in museums. The skull of the female has a very irregular upper outline, forming nearly a compound curve, convex from the center of the orbits to the supra-occipital. Between the orbits is a depression, and the anterior portion of the frontal and the nasals make a second convex line. The posterior part of the parietal slopes rapidly to the interparietal and supra-occipital. The nasals are very short, of equal width throughout their length, the anterior edge forming a nearly compound curve, convex in the center, and the frontal suture irregularly convex. Premaxillæ very long and narrow, curving sharply upward on the posterior half to the nasals, and extending far beyond the first premolar and terminating almost in a point. Facial portion wide between the orbits, narrowing on the superior surface to end of nasals. The width of the face in front of the orbits is continued by the swelling curved line of the maxillæ, which, beginning on a line with the rim of the orbits, slope gradually inward to first upper premolars. Auditory bullæ very large, as is also the external auditory meatus, the latter irregularly oval in shape. Paroccipital process compressed laterally and slightly curving over the bullæ. The palatine, reaching posteriorly the middle of last molar, is broad and short, coming to a point in the center. The anterior palatine foramina are long and slender, narrowing sharply at their posterior end. The zygoma is strong, formed chiefly by the molar. Teeth rather large, with supplementary columns on the malar. The coronoid process of the mandible is very long and narrow, and extends beyond the posterior edge of condyle, nearly the whole of which projection is within the outer line of the coronoid. The angle is very broad and rounded and extends but slightly beyond the vertical posterior border of the ramus. Middle incisors very broad at edge; lateral one narrow, diminishing in size towards the outermost.

	INCHES.
Total length.....	5.90
Anterior edge of nasals to tip of premaxilla.....	1.95
Length of nasals .....	.88
Anterior rim of orbit to tip of premaxilla.....	2.95
Posterior end of nasals to parietal suture.....	1.85
Width of skull at anterior edge of orbit	1.85
Extent of upper premolars.....	.85
" " molars	1.15
" lower premolars .....	.80
" " molars.....	1.20
Length of premaxilla.....	2.30

SUB-ORDER PERISSODACTYLA.

FAM. EQUIDÆ.

Equus asinus somalicus (Sclat).

Equus asinus somalicus. Wild Ass. Native name *Gumburi*.

a. ♂ ad. Las Durban.

b. ♀ ad. Las Durban.

c. ♂ ad. Haili.

d. ♂ 2 yrs. Laferug.

In certain parts of Guban, notably in the sterile district lying near the coast, about twenty miles east of Berbera, the Wild Ass is not very uncommon. We met with it also in considerable numbers on the high plateau west of Laferug, and also saw some individuals south of the Golis Range in the vicinity of "Nasr Hablod" the mountains called "Virgin's Breast," where they were living among the thorn forests with high aloe undergrowth, frequented by the Lesser Koodoo. In fact, it was on an occasion when I was engaged tracking one of these antelope that I came suddenly upon a little family of Wild Asses, consisting of a jack, mare and foal. It is a very handsome animal, and although the head is large, it is very well shaped and has none of the heavy appearance so characteristic of the donkey generally. The blue-gray coat, relieved with the white nose and belly, and the striped whitish legs, all combine to present a very handsome animal, and I was most agreeably surprised by the first one we obtained, it had so much more of a game appearance than I had anticipated. The Wild Ass is an exceedingly wary creature, always on the alert, and it is no easy matter to approach within even long shooting distance of a single animal, much less a number of them together. They go usually either alone or in small parties of two or three individuals. The greatest number I ever met with

at one time was eight. They prefer sterile, rocky districts, the ground covered either with sand or broken stones, and when hunting them I often wondered what the animals lived on, grass was so scarce and the blades grew so far apart when a patch was discovered. Wild Asses are dependent upon water, and they never go far from places where it may be easily obtained, and their tracks were always visible in the vicinity of pools or other sources of supply, showing they came regularly to drink. In spite of their alertness, swiftness and other game qualities, no one, I should imagine, would shoot a Wild Ass for sport, it is too much like slaughtering horses, and after killing the first one, if it had not been for scientific purposes, none of my party or myself would have molested them a second time. The flesh of these animals is very good, almost the best we ate in Somaliland, being more tender and having much more flavor than any of the antelopes. It does not seem to be a very plentiful species even in the country of its nativity, and I should judge it would not require much persecution to speedily extinguish the race.

SUB-ORDER HYRACOIDEA.

FAM. PROCAVIIDÆ.

Procavia brucei somalica (Thomas).

Procavia brucei somalica. Rock Rabbit. Native name *Bauna*.
♂ Adadleh.

This curious little animal usually known as Hyrax, Coney or Rock Rabbit, was met with several times amid the rocks generally in the vicinity of the Tugs, or dry bed of the streams. They were very shy and concealed themselves in the holes or crevasses of the rocks, permitting the head, or only a portion of the body to be seen. The specimen brought back was procured at Adadleh just south of the Golis Range, and not far from the Jerato Pass, at an elevation of somewhere near 4,000 feet. It has the elongate whitish dorsal spot, and is of quite a small size, the dimensions being: total length skin about 12.50 inches; front foot, 1.10 inches; hind foot, beneath, 1.90. The accompanying plate exhibits the skull of this specimen, and the peculiar dentition of this strange genus. Unfortunately, a considerable portion of the left side of the inferior surface, including the posterior portion of the palatines, the pterygoid bones, and portions of the alisphenoid, was shot away. The entire upper half of the posterior part of the left ramus has also disappeared. The animal

is in the VI stage as described by Thomas, P. Z. S. p. 53, (1892), when the tip of m^3 is just appearing. Although taken in the highlands, 100 miles from Berbera, I refer this example to the sub-specific form of *P. brucei* Gray, separated by Thomas.

ORDER RODENTIA.

FAM. SCIURIDÆ.

Xerus rutilus (Cretzsch).

Xerus rutilus. Spiny Squirrel. Native name *Dabergáli*.

a. ♂ ad. Laferug.

b. ♀ ad. Laferug.

c.-e. ♂ ad. Hullier.

f.-g. ♀ ad. Hullier.

This species of Ground Squirrel was very common, especially south of the Golis Range, and we met with them wherever we went. They live in holes, many of which they dig for themselves, sometimes in the midst of a dense thorn bush or clump of aloes, impenetrable to most animals. Their ways are very squirrel-like, and they run with great swiftness, the bushy tail carried over the back. When desirous of investigating an intruder on their grounds, they sit upright on their haunches, and I have often seen them stand up for quite a while on their hind legs, so as to benefit by the additional height their heads could reach. The coloring among individuals varies considerably from a pale terra cotta to a rich reddish-brown, and as all the hairs are tipped with white, the coat has a spotted appearance. The dark colored individuals usually have the tail all reddish, or in a process of change to a semblance of gray coloring (black tipped with white), which seems to accompany the pale phase of pelage. We obtained specimens in all stages of change as regards the tail, some having this all reddish, others with tails partly red and partly gray, and others again, with all gray tails. The change from one color to the other seems to begin at the tip and work towards the base, and sometimes it has a curious effect when perhaps one-third of the length has become gray, for it looks as if a portion of a tail of a different individual has been grafted on. Most of the specimens we obtained had the tails red, or in process of change, very few having complete gray tails, so I imagine the red phase is the summer coat, and the gray the winter.

FAM. OCTODONTIDÆ.

Pectinator spekei (Blyth).*Pectinator spekei*.

♂ Adadleh.

This curious chinchilla-like animal was only met with once, at the place mentioned above, on the highland just beyond the head of the Jerato Pass of the Golis Range. It seemed to be a rock-loving species, and was procured at the same time the example of *Procavia* was secured. The fur is very soft, and the skin so thin and delicate that it was very difficult to remove it from the body without tearing. The whiskers are of great length, and the tail bushy but rather short.

FAM. SPALACIDÆ.

Heterocephalus glaber (Rupp).*Heterocephalus glaber*.

a. ♂ ad. Jerato Pass.

b. ♂ ad. Hullier.

This very peculiar hairless rodent was first seen by us at the foot of the Jerato Pass just beyond Mendera. It attracts the notice of the traveler by the little mounds of sand it heaps up in its progress through the soil. It is sensitive to the slightest sound, and even the faint noise made by a footfall in the vicinity of its tunnel will cause it to cease work and remain motionless for a long time. Its immediate presence is disclosed by slight jets of sand rising from the center of the mounds, as the animal is engaged in digging and throwing the sand from the tunnel by its hind feet. When one was discovered so occupied, we would approach carefully and noiselessly as possible, and discharge a rifle into the ground just in front of the creature's head. The concussion would throw into the air a quantity of soil, carrying the animal with it, which was killed by the shock, but the body totally uninjured for a specimen. Certain places we visited had the ground covered for a considerable distance with the sand mounds of this species intersecting the soil in every direction, the tunnels generally winding among the trees, upon the roots of which the animal probably subsists. So wary, however, were they, and so difficult was it to approach them without giving an alarm, that although we frequently watched the little mounds for a long time after the sand was seen to fly from them, we were only able to secure two specimens. Two species of this genus are known, the

present and *H. phillipsi*, both from Somali-land, the latter, however, only between 200 and 300 miles from the coast. We did not meet with *H. phillipsi*, which is a much smaller animal, the type of which was procured at Gerlogobie, Ogaden.

FAM. LEPORIDÆ.

Lepus ———?

Lepus ———? Hare. Native name *Bokeila*.

a. ♂ ad. Silo Plain.

b. juv. Haud.

We constantly met with this Hare almost everywhere we went. It would dash suddenly out of a clump of bushes or grass and go flying away, rarely stopping to look back, but dodging in and out among the bushes until lost to sight. Individuals were found singly, and I do not recollect an instance when more than one was started at a time. They seemed to be solitary in their habits, preferring their own society to that of any other of their kind. I brought back only two specimens, an adult and young, not sufficient material to satisfactorily identify the species. It may be either *L. berberanus*, Heugl., or *L. somalensis*, Heugl., or it may be neither. The general color is reddish fawn, the hair on the back tipped with black, but the light bases showing, giving this part a spotted appearance; neck and breast reddish fawn, throat and rest of under parts pure white. Tail black on top, remaining part white. The individual was shedding its coat, and mixed with the hair on the back are patches of short reddish fur, entirely different in color from the rest of the coat. Total length from nose to tip of tail about 21 inches. Ears, 4.75. Hind foot, 3.70. Skull from anterior edge of nasals to supra-occipital, 3.40. Length of nasals (extreme), 1.50. Anterior rim of orbit to tip of premaxilla, 1.40. Width of skull at posterior end of nasals, .80; at fronto-parietal suture, .90. Length of mandible from anterior edge of symphysis to posterior edge of condyle, 2.35.

ORDER CARNIVORA.

FAM. FELIDÆ.

Felis leo (Linn).

Felis leo. The lion. Native name *Libah*.

♂ South of Toyo Plain.

♀ juv. Toyo Plain.

The lion is pretty well distributed throughout Somali-land, becoming more plentiful as one penetrates into the interior. It

is getting to be rather scarce north of the Golis Range, and we first came upon its track and heard its roar at night at Mandera, near the base of the mountains. The Somali lion is a degenerate descendant of the South African species, much smaller in size as a rule, of a grayish hue, and with little or no mane. Rarely are specimens obtained with even a fairly long mane. Judging from our experience with them, they are most cowardly in disposition, and avoid man's presence whenever possible. Of course, if wounded and surrounded so that escape seems impossible, the Somali lion will show fight, as any other animal will, even a rat, but his principal idea seems to be when followed to put as much ground between himself and his pursuers as possible.

We did not make it a business to hunt lions, as it wastes too much time, and after seeing a number of skins I decided it would not properly represent the real lion in collections, and so after procuring a specimen or so, we paid no attention to them except when they were accidentally met with. At one time we followed one for several hours until sunset compelled us to give the chase up, and although the beast continually took refuge in dense grass and thickets of thorn bushes, he never would remain in them or show fight, but the moment any of us came up to his hiding place he would bolt out the opposite side, so we never got a chance to shoot, and he was only seen once by one of the beaters. We met with lions in the middle of the Haud, many miles from water, and these animals must depend upon the blood of the creatures they kill to quench their thirst. Lions commit great depredations upon the flocks of the natives, and will no doubt make a meal of one of them also if they happen to find him asleep or off his guard in the bush. The Midgans kill many of them with their poisoned arrows, which, although they inflict but slight wounds, bring death in a brief period. Lions are sometimes hunted on horseback by large parties of natives, who bother him to such an extent that he does not know which way to turn, and is killed by their spears and arrows. An unsportmanlike way frequently practiced is to tie a donkey securely, close to an ambuscade built of logs and thorn bushes and wait for the lion to come and kill the donkey, and then shoot him at close quarters. The lion is attracted by the braying of the captive animal and, as he is very fond of donkey flesh, soon finds the place where he hopes to secure a much desired repast. In the highlands and colder parts of the country, as might be expected, the coat of the lion is thicker and heavier, but although I have handled a considerable

number, I have never seen a really fine Somali lion skin, and doubt if the country produces one. Of course, anywhere near the coast it is difficult now to meet with an old lion, they having been mostly all killed, and those obtained are usually young or three-quarters grown, with the cub look still on their faces. Doubtless, to find them at all, one will soon be obliged to penetrate far into the interior, for, like most wild creatures, the lion is rapidly passing away.

FELIS PARDUS.

Felis Pardus (Linn).

Felis Pardus. The Leopard. Native name *Shabel*.

a. ♂ juv. Hullier.

b. ♀ ad. Hersi Barri, Ogaden.

c. ♀ juv. Adadleh.

Leopards are pretty well distributed all over Somali-land, and are the most dangerous of all its wild animals. A leopard is very bold and fearless, and does not hesitate to enter a zareba or village, and seize upon any man or beast he can conveniently reach. They do not appear to attack camels and these animals pay no attention to a leopard even if crawling in their midst, while a lion's roar will cause them to stampede. Leopards are wonderfully agile and very powerful considering their size, for, like the lion, the Somali leopard is smaller than his brethren from other places. I have known one of these beasts to take a carcass (entire) of a spotted hyena, full grown, and carry it up a tree and deposit it in a fork fifteen feet from the ground. The wonder was not only how it was possible for him to carry such a heavy mass up the tree, but how he could even lift it from the ground. But the fact that he did it was evident, for the carcass was up the tree, and the sand beneath was tracked all over by the leopard's feet. Although smaller than the usual size of leopards from other localities, there is no other difference, and it is absurd to make even separate races either of the lion or leopard found in Somali-land. I went all over this question years ago with ample material at my command, and there is no character existing upon which more than one species can be established. Thickness of coat and length of hair vary with the climate, size is no criterion for it is not the same even in members of one family, while color is equally unreliable, it often depending on individual condition. Nor is there any osteological character to be found upon which more than one species can be

based. No two skulls are exactly alike, but, while they have a general structure and shape, there is endless individual variation. Leopards make their dens in caves in the sides of high rocky cliffs, and their hoarse cough can often be heard during the days. Like all cats they prefer to commit their depredations at night, although on several occasions we met them hunting in the daytime. They doubtless kill many of the young of various species of antelope, and of the Wart-Hog, for leopards are very fond of pork. We surprised one just at dusk, stalking a herd of oryx among which were a number of young ones about half grown, and on observing us. he made the best time through the bush of any animal we met with in the country. His bounds were prodigious, and as he had a good start we could not overtake him on our horses before he managed to disappear in the bush. Many sheep and goats of the natives are carried away by this bold robber, and, it is said, young children also are killed by it when it steals into the villages and even huts at night.

CYNAILURUS JUBATUS.

Cynailurus jubatus (Schreib).

Cynailurus jubatus. The Cheetah. Native name *Shabel*.

a. ♂ ad. Golis Range near Berbera.

b. ♀ ad. Golis Range near Berbera.

The natives do not seem to have two names for the Leopard and Cheetah, although I think they recognize them as distinct species. The young are so much alike that it is not to be wondered that they consider them all the same, and some young Cheetahs we had alive were considered by all my men to be only the ordinary Leopards. We never met with this species, except perhaps on one occasion, in Ogaden, where an animal was seen running at a considerable distance from us, and was first thought to be a wild dog (*Lycaon pictus*), but afterwards we came to the conclusion that it must have been a Cheetah. I bought some fine skins from the natives, some of which were said to have been killed in the Golis Range, not many miles from Berbera. The skins I obtained were of the usual style in color and markings, and of course, being in a very hot country, the coats were rather thin, which would not be the case if the animals inhabited elevated districts, with cold temperature, as witness the so-called *Felis lanca* Selater, which, though dwelling in South Africa, possesses a heavy coat to protect it from the cold of the lofty country it inhabits. The same effect upon the quality of the coat pro-

duced by a low temperature is seen in the tigers and leopards from the Amur, and various other high elevations in China, etc., where the fur becomes so long and thick as to be almost woolly. I think the Cheetah is rather scarce in Somali-land, although the young are not infrequently kept alive by the natives for sale to the caravans passing through their territories to the coast.

FAM. VIVERIDÆ.

Genetta pardina? (I. Geoff).

Genetta pardina? Civet Cat.

♂ juv. Higlileh, Ogaden.

A Genet was brought to me in a cage, having been injured by a native. It is rather young to be determined with certainty, the species of this genus having such a general resemblance to each other that it is very difficult to diagnose them without a considerable quantity of material. This specimen was the only one secured by us while in the country, and I should judge it is not a common species. I have referred it, with a doubt, to the *G. pardina* of Geoff St. Hil., which seems to be distinguishable, among other markings, by having the posterior portion of the hind legs and feet black. The skin may be described as having the ground color a grayish or buffy white, covered with black spots, some having rufous centers. A jet black line runs down the hind neck and along the dorsal line, this latter portion having green reflections. Two, more or less distinct rufous lines run along the side of the body, just beneath the black one. Front legs gray, lightest on the feet; hind ones, gray in front, black behind. Tail has six black and seven grayish white rings, the long hairs of the black rings overlapping the gray. Fore neck grayish-white; belly buffy-white. Length of head and body about 18 inches; tail 13. The skull is long and slender, with the molar series above and below not yet completed; auditory bullæ and the external auditory meatus very large; teeth very compressed and pointed.

Helogale undulata (Peters).

Helogale undulata. Icheumon.

♂ Hullier.

We saw but few individuals of this species. It is very shy and retiring, keeping among the thick bushes and disappearing at once on the first sign of danger. I suppose they could be

trapped if one understood the exact method, but shooting was the only available means for us to obtain the animal. This is generally a pretty effective way, if opportunities are favorable, but traps, properly arranged, would undoubtedly have brought us more specimens. It seems to be a scarce species, as yet, in collections, and I regret that I could not bring back more examples.

FAM. HYÆNIDÆ.

Hyæna crocuta (Erxl).

Hyæna crocuta. Spotted Hyæna. Native name *Warába*.

a. ♂ Le Gud.

b. ♂ juv. Le Gud.

c. ♂ Marodijeh.

The Spotted Hyæna was met with everywhere we traveled, except in the Wild Ass country, to the west of Berbera, where its place was taken by the following species. At least that seemed to be the case, as all the Hyænas we saw or killed there were of the striped species. As we penetrated the country these animals became more numerous, and in parts of Ogaden they fairly swarmed. Males seemed to preponderate, and we did not succeed in getting an old female, although we shot a good many of the beasts. Of all animals, I think the Spotted Hyæna is the most loathsome and repulsive. It is usually covered with scabs and sores, caused either by fighting with each other, or from the impure condition of its blood, or perhaps both, and some individuals were so offensive that it was very disagreeable, not only to go near them, but even to stand to leeward of their carcasses.

This Hyæna is exceedingly cowardly, and does its best to save its malodorous body from getting into any danger, but it is a great sneak and woe betide any unfortunate native it comes upon sleeping at night, for with one snap of its powerful jaws it will carry away the whole face of its victim, this being the place usually attacked. Donkeys, sheep, etc., are usually seized by the belly from behind, and the bowels torn out. The power of a Hyæna's jaw is tremendous, and with a single snap they are able to inflict dreadful wounds, while their appetites are boundless, and they are always asking for more. In the role of scavengers these animals with the vultures perform a most useful and necessary service in removing all carrion and offal from the ground, and birds and beasts often have a race as to which shall

arrive at the attractive feast first. This *Hyæna*, among its other accomplishments is possessed of a powerful voice which it is accustomed to display in two ways, one by a succession of long drawn out mournful notes, beginning low and ending in a high key, and the other by sounds resembling the laughter of a maniac. The first is that usually heard when the animals are calling to each other, or when they come about the camp at night and scent the meat or whatever excites their longing desires; while the latter seems to be uttered generally when the creature is laboring under great excitement either caused by hunger, or sexual emotions. It is a good sized beast, low in the hind quarters which are weak, but with powerful shoulders, neck and head. Altogether it cannot be regarded as possessing any attractive qualities, and can only be tolerated on account of its usefulness as a scavenger. The natives always expressed great delight whenever we killed one of these beasts, as they commit such havoc among their flocks and herds, often even carrying away the young children. From the crafty, cowardly way of the creature the natives are not often able to get near enough to kill them with spears, and so are too happy to witness their destruction by the more certain and far-reaching rifle. Although this species is found quite near to the coast, even visiting the vicinity of the markets at Berbera at night to steel scraps of meat, it is not found in any considerable numbers, until the interior is reached.

Hyæna striata (Zimm).

Hyæna striata. Striped *Hyæna*. Native names *Dedar*, *Werra*.

♀ ad. Durban. *Dedah*.

♂ ad. South of Toyo Plain. *Dedah*.

♂ ad. Hullier. *Werra*.

♂ ad. Hersi Barri, Ogaden. *Werra*.

This striped *Hyæna* was much less frequently met with than the previous species, although it appears to be about as widely distributed throughout the country. We did not find it on the Haud, although it is very probable that it is there, but the list of places given above where we preserved specimens shows that it was met with from the vicinity of the sea to the farthest point in the interior reached by us. There are two recognizable forms of this species known to the natives, as "*Dedar*" and "*Werra*." The latter, they say, is much more destructive than the other, and kills their sheep and goats apparently merely to indulge its propensities for slaughter, destroying many more animals than

it can possibly consume at one time. It is smaller than the Dedar and the stripes are more numerous and intensely black, standing out clearly and distinct from the other colors of its coat. The natives also say it is abroad much oftener by day than the spotted Hyæna, and does not wait for the cover of darkness to commit its depredations. The striped Hyæna is a much more cleanly animal than its relative, and I never saw one covered with scars and sores as is often the case with the spotted Hyæna, nor does it seem to possess a like offensive odor. It may be that it lives more on freshly killed animals, and has not an especial liking for carrion, but this, of course, I cannot vouch for. I have known it to eat carcasses of animals killed the same day and thrown outside our camp, but as this animal is a Hyæna it is fair to presume, I suppose, it would have eaten them even if tainted.

It is rather a handsome animal, the fur is long and thick, and the tail bushy, and when the stripes are well defined it does not present an unattractive appearance. There seems to be a very considerable difference in the shape and size of the skulls of this species, which is probably merely an individual variation, but as that belonging to the adult specimen of the Werra was destroyed and the other belonged to an immature individual I could not make a satisfactory comparison with the adult skulls of the *Dedar*. The difference in size and markings between the two forms, may have no specific value, but it requires investigation when sufficient material is available.

Canis anthus (F. Cuvier).

Canis anthus. Jackall. Native name *Dowáo*.

a. ♂ ad. Berbera.

b. ♂ ad. Anouf Prairie.

This jackall was very common all over the country, and was constantly met with in our hunting trips. It was not especially shy, and would often trot carelessly along in full view and within easy rifle shot. If at such time one whistled, the little animal would stop and gaze at the intruder on his grounds often for a long while, and if not shot at, after satisfying its curiosity, would continue on its travels. But should a rifle bullet go whizzing in its vicinity, then it stood not on the order of its going, but went at once. This and the succeeding species are very destructive to the kids and lambs in the flocks of the natives, and may possibly, if several act in concert, kill sheep and goats, though I fancy the latter, especially the rams, would with their horns be more than

a match for this jackall. It seemed to be constantly on the move, going along in the quick, slouching trot so characteristic of this class of animals, and only breaking into a canter when alarmed. It follows the hyænas and helps them dispose of any carcase lying about, and sits at a respectable distance from the lion when engaged with his prey in hopes of obtaining some scraps left by the Lord of the jungle from his feast. The jackall is keen of scent, and quickly discovers the presence of any flesh in his vicinity, and loses no time in getting to it. Its voice is often heard in a long drawn, plaintive howl, especially at night, when it finds courage in the darkness to draw near the camp and serenade its inmates, excited by the smell of meat to this effort of questionable melody and song. This species may catch small animals, possibly does, and also various species of jungle fowl, although I have no proof of this, but as it is constantly hunting for something to eat, I doubt if it passes any living thing of which it is capable of making a meal. When captured alive it shrinks from any one who approaches, and in only a few instances have I seen it assume the aggressive and attempt to bite. When taken in a trap it generally lies quiet, and it was the exception when one struggled to free itself. With the hyænas and vultures, the jackall is a humble assistant in the necessary duties of a scavenger, and helps to remove all fleshy material from remaining exposed to the baneful effects of the sun.

Canis mesomelas (Schreb).

Canis mesomelas. Black-Backed Jackall. Native name *Dowdo*.

a. ♀ ad. South of Toyo Plain.

b. ♂ ad. Adadleh.

c. ♂ ad. Marodijeh.

f. ♀ ad. Marodijeh.

We did not meet with this species until we were south of the Golis Range, and from there, during the remainder of our journey, it was frequently encountered. Its habits are the same as those of the common jackall, but I don't remember ever to have seen the two species consorting together. It is a much handsomer animal than its relative, the dark back contrasting finely with the color of the flanks. I have seen as many as four together in the early morning trotting along, evidently returning to their dens after a night's foray, but, as a rule, like the preceding species, they are solitary in their habits, and it is not often that more than one is met with at a time. The peculiar markings of this jackall make it very conspicuous, and it was not difficult to distinguish

the species even when at some distance away. The two forms inhabit similar areas, and it was a very common occurrence to meet with both in the same locality. It might be reasonably supposed that hybrids might be produced from animals so closely related, living practically together, but I neither saw any myself nor heard of any having been seen by others. Like its relative, the present species has a wide distribution on the African continent, and is in nowise confined to Somali-land.

Otocyon megalotis (Demarest).

Otocyon megalotis. Fox. Native name *Golo Waraba*.

a. ♂ ad. Dagahbur, Ogaden.

This pretty species was first seen by me at Mandera, at the base of the Golis Range. It is like all of its kindred, very shy and adverse to exposing any part of its body to the gaze of man. I usually met with it when hunting the Lesser Koodoo, and would catch a glimpse of it as it stealthily crept along amid the aloes that covered the ground, stopping occasionally to look at me, but showing at such times merely a portion of its head over the thick clumps of long leaves. Of course, being after nobler game, I could not shoot it on such occasions, and many favorable opportunities for securing specimens of this species were thus lost. This Fox is generally seen singly, rarely in pairs, but more than two I have never seen together. The very long and broad ears give this animal a peculiar appearance, and its short legs make it appear much smaller than it really is. Of course, although we saw this species frequently at times when we could not shoot it for fear of starting nobler game, we never could find it when especially hunting for it, and this accounts for my only bringing back a single specimen; and at one time indeed it seemed very likely that we would have to return without any examples at all. While by no means common it cannot be considered a very rare species in Somali-land, but its cunning disposition and secretive ways will always cause it to be a rather difficult animal to procure, unless in traps.

ORDER INSECTIVORA.

FAM. MACROSCOLIDIDÆ.

Macroscelides rivolii (Huet).

Macroscelides rivolii. Jumping Shrew.

♂ ad. Haili. Guban.

This curious little creature, with its long, slender nose and hind legs, was only occasionally seen, not because it was espe-

cially rare, but more on account of its retiring habits, which caused it to seek concealment under some thick bushes, or amid a dense clump of aloes. When startled from some such place of refuge it would run with amazing speed to a similar harbor and at once disappear from sight. I saw it several times when thus going from one hiding place to another, and it appeared to me that it ran rather than jumped, though its motions were so quickly performed that it was difficult to determine exactly the precise method of progression, especially as I was generally looking down upon the animal from the back of my horse. As it ran it had a peculiar appearance with the long nose projecting in front of the head, and the long tail standing rather stiffly behind. The single specimen obtained was killed by one of my men with a stick as it was endeavoring to hide under a bush.

FAM. ERINACEIDÆ.

Erinaceus diadematus (Fitzinger).

Erinaceus diadematus. Hedge Hog.

a.-b. ♂ ad. Berbera.

Two examples of this species were captured alive on the Maritime Plain one night, as they were seen rambling over the sand in the moonlight. Like all the members of the genus, they offer no resistance, but immediately rolled themselves into a ball, only attempting, by a sudden muscular movement, to drive the spines into the hand of anyone who touched them. When released, after bringing them to the house, they soon began to walk about and examine everything within reach, only assuming the ball shape when handled. They were not uncommon in the Maritime Plain, but as they appeared at night it was only by chance that one was encountered. We did not succeed in procuring more than these two individuals during our journey.

Erinaceus albiventris (Wagner).

Erinaceus albiventris. White-bellied Hedge Hog.

♂ ad. Toyo Plain.

We only met with this species once, on our return journey across Toyo Plain. It was found by a native and brought into camp. It is a rather nice looking animal with its light-colored spines and white under-parts, and is peculiar for the entire absence of the hallux. I imagine its range is restricted to the south of the Golis.

ORDER PRIMATES.

FAM. CERCOPITHECIDÆ.

Cynocephalus hamadryas (Linn).

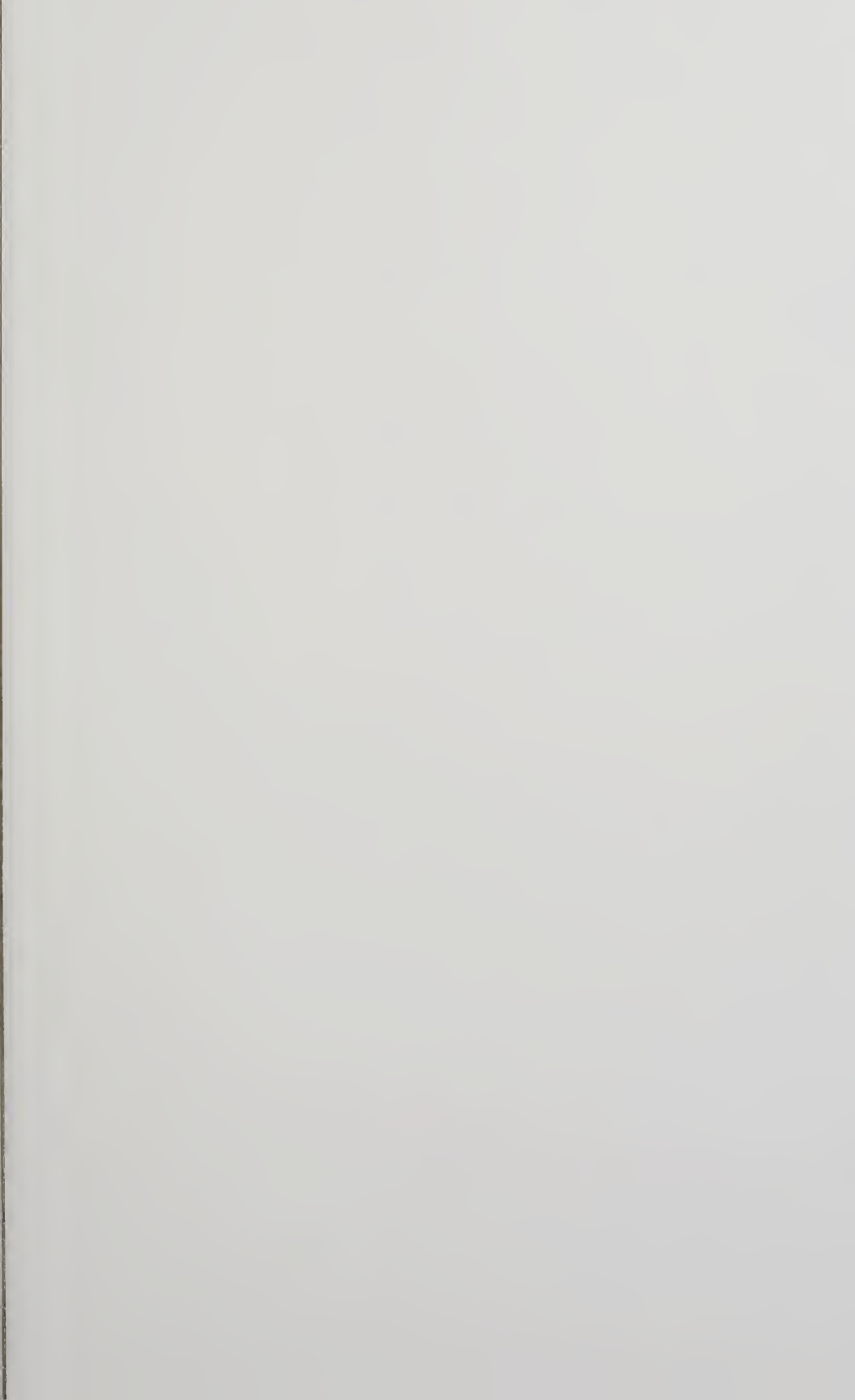
Cynocephalus hamadryas. Hamadryas Baboon. Native name, *Dayer*.

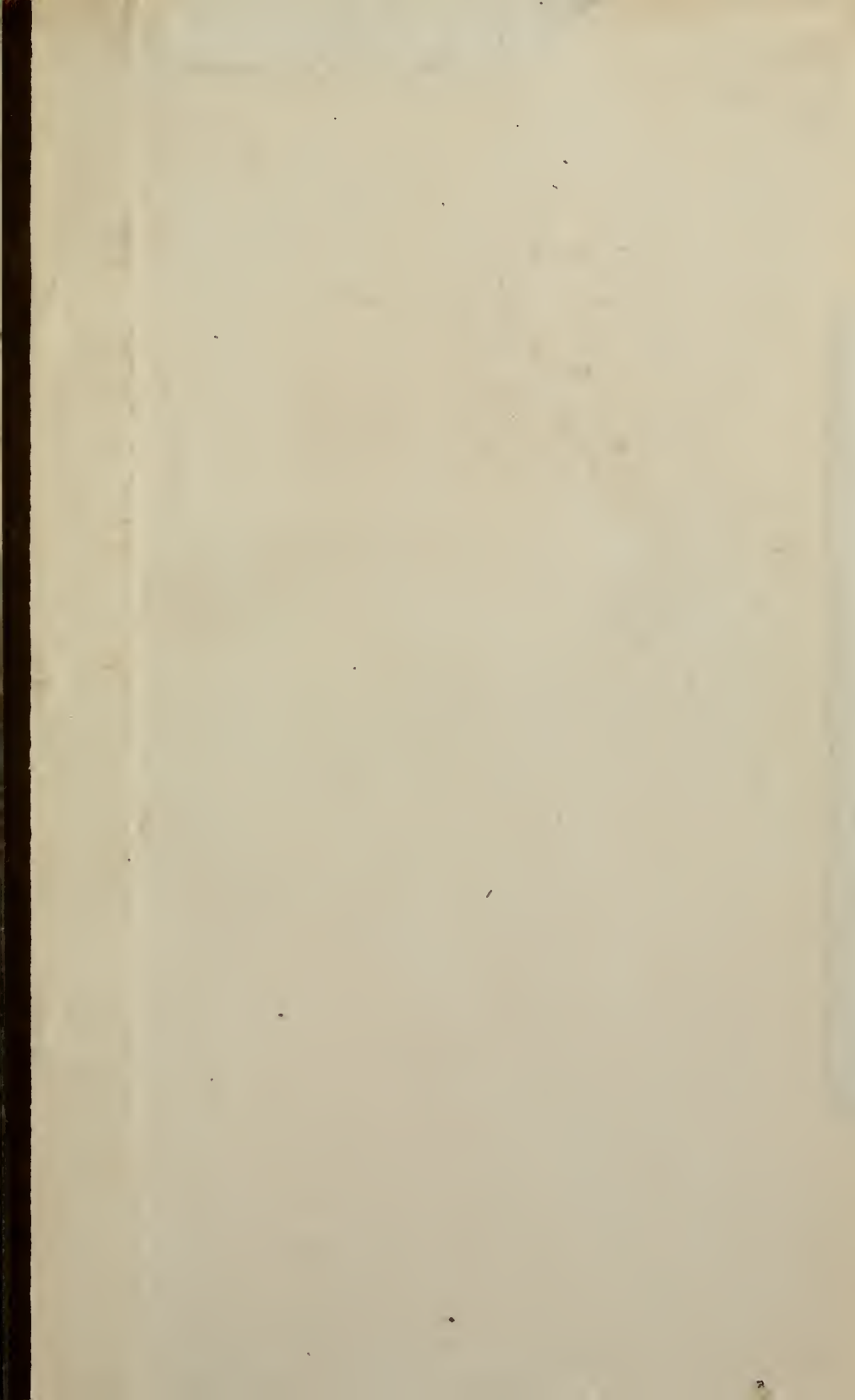
a. ♂ ad. Sheik Pass. Golis Range.

This large species of Baboon was the only one inhabiting the entire country until the valley of the Shebeyleh is reached. We met with it numerous times in Durban, where we went for the wild ass. It is fond of living among the rocks, in fact it is rare to find any individuals far from some rocky ledge, to which they hastily betake themselves on the slightest appearance of danger. They run on all fours with considerable speed and get over the roughest places and overcome intervening obstacles with wonderful dexterity. Where a troupe is discovered the members salute the intruder with loud hoarse barks, and the entire party are apparently thrown into a state of great excitement. Some old male will seat himself upon a high vantage point so as to overlook all below him, while expressing his disapproval of the presence of foreigners not of his class in his dominions, by angry barks and grunts, at the same time he keeps a sharp eye upon the enemy's movements and issues his orders to the rest of the band as to the imminence of danger, and the proper methods for them to adopt in order to escape it. When it is evident that it is the stranger's intention to cultivate a close acquaintance with the rock-dwellers, then the order for flight is given, and the band cease their offensive remarks and scamper away over the rocky heights, those of them too young to keep up with the rest, clinging to their mother's body with arms and legs. The sentinel delays a moment after the rest have started, and then, ejaculating one more emphatic swear word, takes up the line of flight making the best time he knows, but stopping occasionally to anathematize his pursuers. When one has made a slight mistake in his calculations as to the distance a rifle bullet might be disagreeable and gets hit, although his interests in all the subsequent proceedings may have vanished, the excitement of the rest is greatly increased, and, with much threatening by voice and action, they advance toward the body of their fallen companion, as if to dispute its possession with the slayers. No doubt these powerful animals with their great teeth and strength would be very formidable adversaries even to an armed man if they attacked

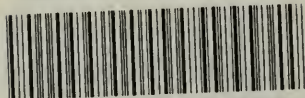
him in any numbers, but generally I believe their actions do not as a rule pass beyond the threatening stage, their natural solicitude for their own safety and that of their families inducing them to think better of aggressive warfare, and to attend strictly to the preservation of their own skins. This is a fine large species, and the long gray manes that cover their backs and shoulders, especially in the case of old males when they are very thick and heavy, give them a rather majestic appearance.







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